UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,916	07/09/2007	Naoya Kojima	P30703	2020

7055 7590 02/27/2008

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER	
POPA, ILEANA	
ART UNIT	PAPER NUMBER
1633	

NOTIFICATION DATE	DELIVERY MODE
02/27/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary	Application No.	Applicant(s)	
	10/598,916	KOJIMA ET AL.	
	Examiner	Art Unit	
	ILEANA POPA	1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/15/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-8 are pending and under examination.

Information Disclosure Statement

2. The IDS form of 08/15/2007 has been considered. It is noted that the foreign document 54-113417 has been lined through because Applicant did not provide an English translation of the document, nor did Applicant provide an English abstract. With respect to the cited non-patent literature, the documents were not provided by the Applicant. Applicant notes that copies of the non-patent literature documents have been provided to the Office in connection with PCT/JP05/005446. However, the Examiner was unable to find such copies; moreover, a search for documents attached to the PCT/JP05/005446 in the WIPO site failed to render the non-patent literature documents cited on Applicant's IDS. Therefore, these documents were not considered by the Examiner and have been lined through. Additionally, since no English translation has been provided, the foreign documents 62-294432, 95-11704, 07-126185, and 2006-025411 were only considered with respect to their abstract.

Priority

3. It is acknowledged that a certified foreign priority paper has been received. However, an English translation has not been provided. Correction is required. Until such an English translation is provided, the priority date of the instant Application is

considered to be 03/17/2005, i.e., the filing date of PCT/JP05/005446.

Should Applicants provide a certified translation of their foreign priority document to overcome the prior art rejection, Applicants should indicate whether the priority application is identical to the instant application, or if the priority application contains additional disclosure. If there is additional disclosure, a brief summary should be provided. Applicants should also indicate where support for each of the claim limitations (for the independent claims) can be found in the translated priority document by page and line number. If support is not found *in ipsis verbis*, clarification on the record may be helpful to the examination process.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugimoto et al. (U.S. Patent No. 5,759,572, Applicant's IDS).

Sugimoto et al. teach an immunostimulatory composition comprising liposomes and an antigen (i.e., a substance to be administered), wherein the liposomes are coated with an oligosaccharide such as manopentaose or mannotriose (claims 1-4) (Abstract, column 1, lines 5-10, column 2, lines 24-65, column 7, lines 55-65). Sugimoto et al.

teach their composition as being suitable to be used as an anti-cancer vaccine (claim 5) (column 8, lines 16-20). Since the instant specification defines that the drug could be an anti-cancer vaccine (p. 11, fourth paragraph), Sugimoto et al. teach a drug delivery liposome composition meeting all claim limitations, and therefore, they anticipate the claimed invention.

6. Claims 1-4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu et al. (Bioorganic and Medicinal Chemistry, 2003, 11: 1191-1195), as evidenced by Wang et al. (Chin Med J, 2000, 113: 281-285).

Shimizu et al. teach an immunostimulatory composition comprising oligomannose-coated liposomes and *Leishmania* peptide antigens (i.e., a substance to be administered), wherein the oligomannose is manopentaose (claims 1-4) and wherein the immunostimulatory composition is administered intraperitoneally (claim 6) (Abstract, p. 11191, column 2, p. 1192, columns 1 and 2). With respect to the limitation of the composition being taken by the macropahges in the peritoneal cavity (claim 6), Shimizu et al. teach their oligomannose-coated liposomes as being able to efficiently interact with the mannose receptor on antigen-presenting cells (APCs) followed by the delivery of the antigen to the APCs (p. 1194, column 1); since macrophages are APCs (see Wang et al., Discussion), Shimizu et al. teach that their composition is taken up by macrophages. It is noted that Shimizu et al. teach a composition identical to the claimed composition which, similar to the claimed invention, is taken by the macrophages in the peritoneal cavity; therefore, their composition must necessarily be

delivered to a target site after its uptake by the peritoneal macrophages (claim 6). Since the instant specification defines that the drug could be a peptide vaccine (p. 11, fourth paragraph), Sugimoto et al. teach a drug delivery liposome composition meeting all claim limitations, and therefore, they anticipate the claimed invention.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto et al., in view of each Wang et al., Koenen et al. (Cancer Immunol Immunother, 1996, 42: 310-316), Hagiwara et al. (Cancer Research, 1993, 53: 687-692), and Babincova et al. (Bioelectrochemsitry, 2002, 55: 17-19).

The teachings of Sugimoto et al. anticipate claims 1-5. Briefly, Sugimoto et al. teach a composition comprising manopentaose- or mannotriose-coated liposomes and cancer immunotherapeutic agent.

Sugimoto et al. teach subcutaneous administration and not intraperitoneal administration (claim 6). However, at the time of filing intraperitoneal administration of cancer immunotherapeutic agents was known in the prior art, for example by Wang et

al., who teach that intraperitoneal administration of liposome-encapsulated IL-2 is effective in activating macrophages to exhibit tumor-killing activity (Abstract, Discussion) and by Koenen et al., who teach that intraperitoneal administration of cancer immunotherapeutic agents such as GM-CSF is a necessity for activating peritoneal macrophages to exhibit killing activity against local tumors (Abstract, p. 310, column 1, p. 314, column 2, second full paragraph, p. 315, column 1). It would have been obvious to one of skill in the art, at the time the invention was made, to use the liposomes of Sugimoto et al. to intraperitoneally deliver cancer immunotherapeutic agents such as IL-2 or GM-CSF to achieve the predictable result of inducing the killing of local tumor cells by IL-2- or GM-CSF activated peritoneal macrophages. With respect to the limitation of the composition being taken up by the peritoneal macrophages (claim 6), it is noted that, after intraperitoneal administration, the mannosylated liposomes of Sugimoto et al., Wang et al., and Koenen et al. must necessarily be taken up by the local macrophages because macrophages express the mannose receptor on their surface (see Kawakami et al., Abstract). Since macrophages represent the major constituent of milky spots in the omentum and mesentery and since activated macrophages migrate to the milky spots (see Hagiwara et al., Abstract, p. 687, column 1, first paragraph and column 2, fifth paragraph, p. 692, column 1, last paragraph; Koenen et al., Abstract, p. 315, column 1), the mannosylated liposomes of Sugimoto et al., Wang et al., and Koenen et al. must necessarily be targeted to the omentum and mesentery (claim 7).

Sugimoto et al. taken with Wang et al., Koenen et al., and Hagiwara et al. do not teach administering their mannosylated liposomes in combination with oligosaccharide-

coated liposomes encapsulating a magnetic compound (claim 8). Babincova et al. teach the use of liposomes encapsulating a magnetic compound for the site-specific delivery of anti-cancer therapeutic, wherein the exposure of the liposomes to a magnetic field leads to local hyperthermia followed by the release of therapeutic agent from the liposomes (Abstract, p. 117, column 2). It would have been obvious to one of skill in the art, at the time the invention was made, to modify the composition of Sugimoto et al. taken with Wang et al., Koenen et al., and Hagiwara et al. by further adding mannosylated liposomes encapsulating a magnetic compound, with a reasonable expectation of success. One of skill in the art would have been motivated to do so in order to obtain a composition capable of releasing the cancer immunotherapeutic agent from the macrophage at milky spots of omentum and mesentery, which are taught by the art to be important sites for tumor dissemination (see Koenen et al., p. 310, column 2, p. 315, column 1). One of skill in the art would have been expected to have a reasonable expectation of success in doing such because the art teaches that liposomes encapsulating magnetic compounds can be successfully made. Thus, the claimed invention was *prima facie* obvious at the time the invention was made.

9. No claim is allowed. No claim is free of prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ILEANA POPA whose telephone number is (571)272-5546. The examiner can normally be reached on 9:00 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Woitach can be reached on 571-272-0739. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ileana Popa, PhD

/Ileana Popa/

Art Unit 1633